

EXPRESS
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Utah Class II Landfill Permit Application Form

AUG 28 2003
03.02913

Division of Solid & Hazardous Waste
Utah Department of Environmental Quality

Part I General Information

APPLICANT: PLEASE COMPLETE ALL SECTIONS.

I. Landfill Type	<input checked="" type="checkbox"/> Class II	II. Application Type	<input type="checkbox"/> New Application	<input type="checkbox"/> Facility Expansion
			<input checked="" type="checkbox"/> Renewal Application	<input type="checkbox"/> Modification

For Renewal Applications, Facility Expansion Applications and Modifications Enter Current Permit Number _____

III. Facility Name and Location

Legal Name of Facility Long Valley Sanitary Landfill				
Site Address (street or directions to site) One mile south of Glendale, Utah on Hwy 89			County Kane	
City Glendale	State UT	Zip Code 84729	Telephone	
Township 40S	Range 7W	Section(s) 26	Quarter/Quarter Section SE $\frac{1}{4}$	Quarter Section SW $\frac{1}{4}$ SW $\frac{1}{4}$
Main Gate Latitude 37 degrees 17 minutes 57 seconds		Longitude 112 degrees 36 minutes 29 seconds		

IV. Facility Owner(s) Information

Legal Name of Facility Owner Western Kane County Special Service District No. 1			
Address (mailing) P.O. Box 36			
City Kanab	State UT	Zip Code 84741	Telephone (435)644-5089

V. Facility Operator(s) Information

Legal Name of Facility Operator Same			
Address (mailing)			
City	State	Zip Code	Telephone

VI. Property Owner(s) Information

Legal Name of Property Owner Same			
Address (mailing)			
City	State	Zip Code	Telephone

VII. Contact Information

Owner Contact Nyle W. Willis		Title Treasurer	
Address (mailing) 28 N. Main St.			
City Kanab	State UT	Zip Code 84741	Telephone (435)644-5089
Email Address NW@KANAB.NET		Alternative Telephone (cell or other)	
Operator Contact Same		Title	
Address (mailing)			
City	State	Zip Code	Telephone
Email Address		Alternative Telephone (cell or other)	
Property Owner Contact Same		Title	
Address (mailing)			
City	State	Zip Code	Telephone
Email Address		Alternative Telephone (cell or other)	

Utah Class II Landfill Permit Application Form

Part I General Information (continued)

VIII. Waste Types (check all that apply)			IX. Facility Area	
Waste Type	Combined Disposal Unit	Monofill Unit		
<input checked="" type="checkbox"/> Municipal Waste	<input type="checkbox"/>	<input type="checkbox"/>	Facility Area.....	40 acres
<input type="checkbox"/> Construction & Demolition	<input type="checkbox"/>	<input type="checkbox"/>	Disposal Area.....	10 acres
<input type="checkbox"/> Industrial	<input type="checkbox"/>	<input type="checkbox"/>	Design Capacity	
<input type="checkbox"/> Incinerator Ash	<input type="checkbox"/>	<input type="checkbox"/>	Years.....	40
<input type="checkbox"/> Animals	<input type="checkbox"/>	<input type="checkbox"/>	Cubic Yards.....	
<input type="checkbox"/> Asbestos	<input type="checkbox"/>	<input type="checkbox"/>	Tons.....	
<input type="checkbox"/> PCB's (R315-315-7(3) only)	<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/> Other _____	<input type="checkbox"/>	<input type="checkbox"/>		

X. Fee and Application Documents

Indicate Documents Attached To This Application

☐ Application Fee: Amount \$

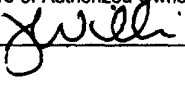
☒ Facility Map or Maps
☒ Ground Water Report

☒ Facility Legal Description
☒ Closure Design

☒ Plan of Operation
☒ Cost Estimates

☒ Waste Description
☒ Financial Assurance

I HEREBY CERTIFY THAT THIS INFORMATION AND ALL ATTACHED PAGES ARE CORRECT AND COMPLETE.

Signature of Authorized Owner Representative	Title	Date
	TREASURER	08/26/2003
Name typed or printed	Address	
Nyle W. Willis	28 NO. MAIN, KANAB, UT 84741	
Signature of Authorized Land Owner Representative (if applicable)	Title	Date
Name typed or printed	Address	
Signature of Authorized Operator Representative (if applicable)	Title	Date
Name typed or printed	Address	

Utah Class II Landfill Permit Application Checklist

Important Note: The following checklist is for the permit application and addresses only the requirements of the Division of Solid and Hazardous Waste. Other federal, state, or local agencies may have requirements that the facility must meet. The applicant is responsible to be informed of, and meet, any applicable requirements. Examples of these requirements may include obtaining a conditional use permit, a business license, or a storm water permit. The applicant is reminded that obtaining a permit under the *Solid Waste Permitting and Management Rules* does not exempt the facility from these other requirements.

An application for a permit to construct and operate a landfill is the documentation that the landfill will be located, designed, constructed, and operated to meet the requirements of Rules R315-302, R315-303, R315-308, R315-309, and R315-315 of the *Utah Solid Waste Permitting and Management Rules* and the *Utah Solid and Hazardous Waste Act* (UCA 19-6-101 through 123). The application should be written to be understandable by regulatory agencies, landfill operators, and the general public. The application should also be written so that the landfill operator, after reading it, will be able to operate the landfill according to the requirements with a minimum of additional training.

Copies of the *Solid Waste Permitting and Management Rules*, the *Utah Solid and Hazardous Waste Act*, along with many other useful guidance documents can be obtained by contacting the Division of Solid and Hazardous Waste at 801-538-6170. Most of these documents are available on the Division's web page at www.hazardouswaste.utah.gov. Guidance documents can be found at the solid waste section portion of the web page.

When the application is determined to be complete, the original complete application and one copy of the complete application are required along with an electronic copy.

Part II Application Checklist

I. Facility General Information	
Description of Item	Location In Document
Completed Part I General information	Attached
General description of the facility (R315-310-3(1)(b))	Page 2
Legal description of property (R315-310-3(1)(c))	Page 2
Proof of ownership, lease agreement, or other mechanism (R315-310-3(1)(c))	Exhibit 2b
Area served by the facility including population (R315-310-3(1)(d))	Exhibit 3
A demonstration that the landfill is not a commercial facility	N/A
Waste type and anticipated daily volume (R315-310-3(1)(d))	Page 3
Intended schedule of construction (R315-302-2(2)(a))	Page 19
Demonstration That The Facility Meets The Location Standards (R315-302-1)	
Land use compatibility	
Maps showing the existing land use, topography, residences, parks, monuments, recreation areas or wilderness areas within 1000 feet of the site boundary	Exhibit 11
Certifications that no ecologically or scientifically significant areas or endangered species are present in site area	N/A
List of airports within five miles of facility and distance to each	N/A

Utah Class II Landfill Permit Application Checklist

I. Facility General Information	
Description of Item	Location In Document
Geology	
Geologic maps showing significant geologic features, faults, and unstable areas	Exhibit 12
Maps showing site soils	Exhibit 12 page 7
Surface water	
Magnitude of 24 hour 25 year and 100 year storm events	
Average annual rainfall	Page 6
Maximum elevation of flood waters proximate to the facility	N/A
Maximum elevation of flood water from 100 year flood for waters proximate to the facility	N/A
Wetlands	None
Ground water	Page 7
Plan of operations (R315-310-3(1)(e) and R315-302-2(2))	
Description of on-site waste handling procedures and an example of the form that will be used to record the weights or volumes of waste received (R315-302-2(2)(b) And R315-310-3(1)(f))	Page 19
Schedule for conducting inspections and monitoring, and examples of the forms that will be used to record the results of the inspections and monitoring (R315-302-2(2)(c), R315-302-2(5)(a), and R315-310-3(1)(g))	Page 20
Contingency plans in the event of a fire or explosion (R315-302-2(2)(d))	Page 20
Corrective action programs to be initiated if ground water is contaminated (R315-302-2(2)(e))	Page 21
Contingency plans for other releases, e.g. explosive gases or failure of run-off collection system (R315-302-2(2)(f))	Page 21
Plan to control fugitive dust generated from roads, construction, general operations, and covering the waste (R315-302-2(2)(g))	Page 21
Plan for litter control and collection (R315-302-2(2)(h))	Page 25
Description of maintenance of installed equipment (R315-302-2(2)(i))	Page 21
Procedures for excluding the receipt of prohibited hazardous or PCB containing wastes (R315-302-2(2)(j))	Page 22
Procedures for controlling disease vectors (R315-302-2(2)(k))	Page 22
A plan for alternative waste handling (R315-302-2(2)(l))	Page 23
A general training and safety plan for site operations (R315-302-2(2)(o))	Page 24
Any recycling programs planned at the facility (R315-303-4(6))	Page 24
Any other site specific information pertaining to the plan of operation required by the Executive Secretary (R315-302-2(2)(o))	N/A

Utah Class II Landfill Permit Application Checklist

// Facility Technical Information	
Description of Item	Location In Document
Maps	
Topographic map drawn to the required scale with contours showing the boundaries of the landfill unit, ground water monitoring well locations, gas monitoring points, and the borrow and fill areas (R315-310-4(2)(a)(i))	Exhibit 10
Most recent U.S. Geological Survey topographic map, 7-1/2 minute series, showing the waste facility boundary; the property boundary; surface drainage channels; any existing utilities and structures within one-fourth mile of the site; and the direction of the prevailing winds (R315-310-4(2)(a)(ii))	Exhibit 11
Geohydrological Assessment (R315-310-4(2)(b))	
Local and regional geology and hydrology including faults, unstable slopes and subsidence areas on site (R315-310-4(2)(b)(i))	Page 6
Evaluation of bedrock and soil types and properties including permeability rates (R315-310-4(2)(b)(ii))	Page 6
Depth to ground water (R315-310-4(2)(b)(iii))	Page 6 Exhibit 6
Quantity, location, and construction of any private or public wells on-site or within 2,000 feet of the facility boundary (R315-310-4(2)(b)(v))	Exhibit 7
Tabulation of all water rights for ground water and surface water on-site and within 2,000 feet of the facility boundary (R315-310-4(2)(b)(vi))	Exhibit 7
Identification and description of all surface waters on-site and within one mile of the facility boundary (R315-310-4(2)(b)(vii))	Exhibit 11
For an existing facility, identification of impacts upon the ground water and surface water from leachate discharges (R315-310-4(2)(b)(viii))	Page 11 None Known
Calculation of site water balance (R315-310-4(2)(b)(ix))	Page 8
ENGINEERING REPORT - PLANS, SPECIFICATIONS, AND CALCULATIONS	
Engineering reports required to meet the location standards of R315-302-1 including documentation of any demonstration or exemption made for any location standard (R315-310-4(2)(c)(i))	Page 10
Anticipated facility life and the basis for calculating the facility's life (R315-310-4(2)(c)(ii))	Page 14
Unit design to include liner design, if liner is to be used; cover design; fill methods; and elevation of final cover including plans and drawings signed and sealed by a professional engineer registered in the State of Utah, when required (R315-310-3(1)(b) and R315-310-4(2)(c)(iii))	Page 10 Exhibit 9
Leachate collection system design and calculations showing system meets the requirements of R315-303-3(2) if a liner is to be used	Page 11
Equipment requirements and availability (R315-310-4(2)(c)(iii))	Page 21
Identification of borrow sources for daily and final cover and for soil liners (R315-310-4(2)(c)(iv))	Page 10

Utah Class II Landfill Permit Application Checklist

// Facility Technical Information	
Description of Item	Location In Document
Run-off or leachate collection, treatment, and disposal and documentation to show that any treatment system is being or has been reviewed by the Division of Water Quality (R315-310-4(2)(c)(v) and R315-310-3(1)(i))	Page 21
Landfill gas monitoring and control plan that meets the requirements of Subsection R315-303-3(5) (R315-310-4(2)(c)(vii))	Page 11
Slope stability analysis for static and under the anticipated seismic event for the facility (R315-310-4(2)(b)(i) and R315-302-1(2)(b)(ii))	N/A
Design and location of run-on and run-off control systems (R315-310-4(2)(c)(viii))	Page 21
CLOSURE PLAN (R315-310-3(1)(h))	
Closure schedule (R315-310-4(2)(d)(i))	Page 14
Design of final cover (R315-310-4(2)(c)(iii))	Page 14
Capacity of site in volume and tonnage (R315-310-4(2)(d)(ii))	Page 14
Final inspection by regulatory agencies (R315-310-4(2)(d)(iii))	Page 15
POST-CLOSURE CARE PLAN (R315-310-3(1)(h))	
Site monitoring of landfill gases, ground water, and surface water, if required (R315-310-4(2)(e)(i))	Page 11
Changes to record of title, land use, and zoning restrictions (R315-310-4(2)(e)(ii))	Page 17
Maintenance activities to maintain cover and run-on/run-off control systems (R315-310-4(2)(e)(iii))	Page 17
List the name, address, and telephone number of the person or office to contact about the facility during the post-closure care period (R315-310-4(2)(e)(vi))	Page 2
FINANCIAL ASSURANCE (R315-310-3(1)(j))	
Identification of closure costs including cost calculations (R315-310-4(2)(d)(iv))	Page 26
Identification of post-closure care costs including cost calculations (R315-310-4(2)(e)(iv))	Page 26
Identification of the financial assurance mechanism that meets the requirements of Rule R315-309 and the date that the mechanism will become effective (R315-309-1(1))	Page 26

PERMIT RENEWAL APPLICATION
LONG VALLEY SANITARY LANDFILL

JULY, 2003

PREPARED BY: BEEHIVE ENGINEERING

**RENEWAL APPLICATION FOR THE
LONG VALLEY SANITARY LANDFILL**

July, 2003

**PREPARED BY: BEEHIVE ENGINEERING
PANGUITCH, UTAH**

TABLE OF CONTENTS

APPLICATION

INTRODUCTION	1
RESPONSIBLE PARTIES	1
GENERAL DESCRIPTION	2
LEGAL DESCRIPTION	2
WASTE TYPES/AREA TO BE SERVED	3
PLAN OF OPERATION	3
REQUIRED FORMS	3
INSPECTIONS	4
CLOSURE AND POST CLOSURE	4
WATER QUALITY REVIEW	4
CONTOURING, FINAL COVER AND SEEDING	4
FINANCIAL ASSURANCE	5

GEOHYDROLOGICAL ASSESSMENT

GEOLOGY	6
HYDROLOGY	6
ON SITE SOIL PROPERTIES	7
GROUNDWATER	7
WELLS AND WATER RIGHTS	7
SURFACE WATERS	8
WATER BALANCE	8
POTENTIAL GROUNDWATER CONTAMINATION	8

PRELIMINARY ENGINEERING REPORT

SITING CRITERIA	10
SOLID WASTE MANAGEMENT COMPLIANCE	10
LINER DESIGN	10
BORROW SOURCES	10
LEACHATE COLLECTION, TREATMENT, AND DISPOSAL	11
LANDFILL GAS CONTROL AND MONITORING	11
CELL DESIGN AND OPERATION	11
CLOSURE AND POST CLOSURE	12

CLOSURE PLAN

CLOSURE SEASON AND YEAR	14
FINAL COVER, SEEDING, CONTOURING	14
SITE CAPACITY	14
ACTIVE FILL VERSUS CLOSED AREA	14
CLOSURE TIMING AND NOTIFICATION	15
INSPECTIONS	15
CLOSURE COSTS AND MECHANISMS	15

POST CLOSURE PLAN

SITE MONITORING	17
LAND TRANSFERS AND USES	17
INSPECTIONS	17
RUN ON AND RUN OFF SYSTEMS	18
POST CLOSURE COST AND MECHANISM	18

PLAN OF OPERATION

INTRODUCTION	19
INTENDED SCHEDULE OF CONSTRUCTION	19
HANDLING PROCEDURES	19
INSPECTIONS AND MONITORING	20
FIRE/EXPLOSION CONTINGENCY PLAN	20
CORRECTIVE ACTION FOR CONTAMINATED GROUNDWATER ...	21
CONTINGENCY PLAN FOR OTHER RELEASES	21
EQUIPMENT MAINTENANCE	21
DUST CONTROL / AIR QUALITY	21
RUNON/RUNOFF CONTROL	21
EXCLUSION OF HAZARDOUS WASTE	22
DISEASE VECTOR CONTROL	22
ALTERNATIVE DISPOSAL	23
CLOSURE/POST CLOSURE	23
FINANCIAL ASSURANCE	23
TRAINING AND SAFETY PLAN	24
RECYCLING	24
ACCESS CONTROL & ONSITE PERSONNEL	24
LITTER CONTROL	25

FINANCIAL ASSURANCE PLAN

INTRODUCTION	26
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MECHANISMS	26
SCHEDULE OF PAYMENTS	26
COST ESTIMATE	26

EXHIBITS

Exhibit #1	General Vicinity Map
Exhibit #2a	Project Location Map
Exhibit #2b	Property Deed
Exhibit #3	Service District Boundaries
Exhibit #4a-b	Daily Record Forms
Exhibit #5	Quarterly Inspection Log
Exhibit #6	Onsite Soil Data
Exhibit #7	Well and Water Right Documentation
Exhibit #8	Proposed Cell Progression
Exhibit #9a-b	Conceptual Designs
Exhibit #10	Topographic Map
Exhibit #11	USGS Topographic Map
Exhibit #12	Geologic Map

APPLICATION

INTRODUCTION

This report serves as the repermitting application for the Long Valley Sanitary Landfill located near the community of Orderville, Utah in what is known as Long Valley. The purpose of the report is to comply with R315-310 Administrative Rules of the Utah Solid and Hazardous Waste Committee, Utah Department of Environmental Quality.

The Utah Division of Solid and Hazardous Waste has issued a Municipal Landfill permit to the Western Kane County Special Service District (hereafter referred to as the District) for operation of the Long Valley solid waste disposal facility near Orderville, Utah. The site is an acceptable location, and the owner desires to renew the facility permit and bring it into compliance with existing regulations.

Approximately 10 acres were obtained and an additional 30 acres are being acquired by the District for operation of a Class II facility. At some future date, when Class II operation becomes infeasible, the facility will be converted to Class IV status. The landfill currently accepts waste from Orderville, Alton, Glendale, Mount Carmel, and the District's northwestern region. It is capable of servicing the area's current and future needs for many years. The proposed site is centrally located and is capable of being expanded to service national park units and state park units if interagency agreements are reached in the future. In addition, the proposed site is relatively isolated, has sloping topography, and has positive characteristics when considering precipitation, available cover material, and soil permeability. Exhibit 1 is a general vicinity map depicting the proposed site. Exhibits have been extracted from the 1997 permitting documents unless otherwise noted.

RESPONSIBLE PARTIES

The applicant, property owner, and responsible party for site operation is:

Western Kane County Special Service
District No. 1
28 North Main
Kanab, Utah 84741
Attn: Nyle Willis
Phone: (435) 644-5089

Technical questions and comments regarding the application can be directed to:

Brian B. Bremner
P.O. Box 59
Panguitch, Utah 84759

It should be noted the District is continually in the process of developing cooperative solid waste disposal agreements with other governmental entities within its boundaries. Future agreements and alternate ownership/operation scenarios may require modification of this section of the permit. In addition, the District may contract site operations with private entities. The District will notify the Executive Secretary of any changes in responsible party status at least 30 days prior to their effective date.

GENERAL DESCRIPTION

The Long Valley Sanitary landfill is a Class II natural attenuation facility designed to fulfill the current and future solid waste disposal needs of the District. The facility will eventually encompass a total of 40 acres and contemplates service to Orderville, Alton, Glendale, Mount Carmel, and the District's northwestern region. Annual average waste volumes are estimated at less than 20 tons per day, and precipitation is less than 25 inches per year.

No other reasonably practical alternative exists for disposal of the District's solid waste in this region. Hauling distances to Kanab are cost prohibitive and Garfield County's Johns Valley landfill is not currently available for the District's use. Other county facilities are too remote or tipping fees are not within the District's abilities.

Adequate capacity exists and subsurface geohydrology is sufficient to permit expansion to Class I status (with the addition of appropriate clay liners and leachate collection systems) and acceptance of waste in volumes exceeding 20 tons per day. However long term plans contemplate conversion of the Long Valley landfill to a Class IV facility. Modifications to the permit will be made as necessary to accommodate the changing role of the District in solid waste collection and disposal. Facility plans are included in other sections of this document. The facility is currently operational, so no construction specifications are necessary.

LEGAL DESCRIPTION

The current site is legally described as the Southeast 1/4 of the Southwest 1/4 of the Southwest 1/4, Section 26, Township 40 South Range 7 West, Salt Lake Base and Meridian. Additional acreage includes the Southwest 1/4 of the Southeast 1/4 of the Southwest 1/4 in Section 26; the Northeast 1/4 of the Northwest 1/4 of the Northwest 1/4, Section 35; and the Northwest 1/4 of the Northeast 1/4 of the Northwest 1/4 Section 35, Township 40 South, Range 7 West. Exhibit 2a depicts the proposed site's relationship to adjacent sections, townships and ranges. The District currently owns the land where the Long Valley landfill is located. A copy of the property deed for

the landfill site is included as Exhibit 2b.

The facility's main gate is located at 112° 36' 29" longitude and 37° 17' 57" latitude (the northwest corner of the Southeast 1/4 of the Southwest 1/4 of the Southwest 1/4, Section 26, Township 40 South Range 7 West). Lands surrounding the facility are considered multiple use land and are controlled by the federal government. The closest private land exists approximately 1/8th mile northwest of the site in Section 26, Township 40 South, Range 7 west.

No formal zoning ordinances exist for the landfill. When located in unincorporated Kane County, the landfill was zoned in an agricultural area. However the landfill itself had no designation. The location was recently annexed into Glendale and is a grandfathered use. Future policies and ordinances will accommodate the Kanab Sanitary Landfill as they are adopted.

WASTE TYPES/AREA TO BE SERVED

Waste accepted by the Long Valley Sanitary Landfill will be comprised of nonhazardous municipal solid waste. Waste will be comprised of household waste, commercial waste, nonhazardous sludge, small quantity generator waste, and industrial wastes approved by the permit. Special waste shall be accepted and handled in accordance with Administrative Rule R315-315 and the conditions of this permit.

The service area may consist of all lands within the legal boundaries of the District and other areas the District is willing to serve but is generally limited to the northwestern portion of Kane County. The Long Valley Sanitary Landfill may accept waste generated outside the service area if an appropriate agreement or memorandum of understanding has been executed. Appropriate agreements will also be sought from governmental entities and solid waste managers within District boundaries. Exhibit 3 illustrates the Service District Boundaries.

PLAN OF OPERATION

The plan of operation required by Subsection R315-302-2(2) can be found in other portions of this application.

REQUIRED FORMS

The daily record form used to record weights of volumes of waste received required by Subsection R315-302-2(3)(a)(i) is included as Exhibit 4a. The form for recording inspections for hazardous and PCB wastes is included as Exhibit 4b.

INSPECTIONS

The owner or operator will inspect the facility to prevent malfunctions, deterioration, operation errors, and discharges which may result in the release of wastes to the environment or a threat to human health, including landfill gas monitoring as required by regulations. The owner or operator will conduct these inspections at least once each quarter and will complete the inspection log included as Exhibit 5. The inspection log will be kept for a minimum of 3 years from the date of inspection.

CLOSURE AND POST CLOSURE

The detailed closure and post-closure plans required by Subsection R315-302-3 are included in other sections of this document. Closure operations will be performed on an ongoing basis as cells reach final elevation. Post-closure care will be performed as described below.

WATER QUALITY REVIEW

State regulations allow landfills to be permitted by rule. The Division of Solid and Hazardous Waste is responsible for water quality at landfills. Therefore, additional groundwater discharge permits are not required.

The Long Valley Landfill receives an average of less than 20 tons of waste per day and is located in an area that receives less than 25 inches of precipitation annually. In addition, drilling in the area documented in previous applications indicates no groundwater exists within 105 feet of the landfill, and subsurface material provides a barrier for any potential leachate. These characteristics qualify the Long Valley Landfill as a rural arid landfill and make the facility eligible for groundwater monitoring exemptions. No groundwater monitoring or leachate collection is proposed for the landfill.

Use of an industrial or domestic waste water treatment facility is not contemplated for the Long Valley Sanitary Landfill. Water balance calculations submitted as part of the original application indicate a diminimus quantity of leachate will be developed at the site.

CONTOURING, FINAL COVER AND SEEDING

Closure operations will consist of leveling, contouring, placement of appropriate covers, and seeding as necessary to reduce infiltration and preserve the integrity of the completed areas of the landfill. Areas of the landfill reaching final elevation will be closed within six (6) months. Closure operations will include leveling and contouring using intermediate cover to reduce infiltration and ponding. Excess material may be stripped and utilized in other operations or left in place. After

grading operations promoting drainage are complete, earthen material which increases the total cover depth to 2 feet including 6 inches of topsoil will be installed. Geosynthetic clay liners and other compatible covering systems may be used when permeability characteristics are equal to or better than earthen materials.

Upon completion of the covering operations, closed areas will be seeded. The seed mixture shall be developed after consultation with local range specialists and verifying availability of local seed markets. Recently closed sections of the landfill will be evaluated as part of the quarterly inspection process and will be placed on post-closure status.

FINANCIAL ASSURANCE

A detailed financial assurance plan as required by R315-309 is included in other sections of this document. The District has established an escrow account for financial assurance sufficient to assure adequate closure, post-closure care, and corrective action, if required. The account balance is currently in excess of the minimum financial assurance amount of \$20,225.00.

GEOHYDROLOGICAL ASSESSMENT

GEOLOGY

The Long Valley Landfill is situated in the high desert which makes up much of southcentral Utah. The area is characterized by rugged mountains and deep valleys. The landfill is located on the interface between the Glendale Bench and the East Fork of the Virgin River with the surface made up of flat to rolling slopes of alluvial deposits of variable thickness. The elevation of the landfill is approximately 5780 ft. above sea level. West and downgradient of the landfill is Long Valley and the East Fork of the Virgin River. The valley floor is approximately 280 feet below the landfill's elevation.

Site specific geology of the proposed landfill indicates the area predominantly covered by interbedded alluvial material. The surface material, characterized by sands and gravels, extends approximately 16 ft. in depth, and is slightly resistant to infiltration. The surface member is underlain by intermittent silts, and sands to a depth of 25 feet. This material overlays a 5 ft. layer of conglomerate material of low permeability. the remaining material to a depth of 105 ft. consists of soils of decreasing particle size and permeability.

There are no apparent faults, unstable slopes and subsidence areas within the boundaries of the landfill. It should be noted that significant portions of the proposed site are characterized by rolling slopes of alluvial material. On site investigations demonstrate natural material may stand at slopes steeper than 2:1.

HYDROLOGY

The climate in the area is mainly dry, semi-arid, continental. The seasons are well defined, and there is a fairly wide daily range in temperature. The average length of the frost free period is 134 days, and may vary considerably in any given year. Average annual precipitation at Orderville is less than 15.5 inches. The largest amount of precipitation occurs in the months of January and August and the least during April, May, and June. Potential evapotranspiration at the landfill exceeds precipitation by approximately 35 inches. Data kept by the weather bureau on the velocity of wind near the landfill are not available for the area. It would appear, however, that the windiest part of the year is in the spring and the early summer. The prevailing winds are usually dry and blow from the southwest.

ON SITE SOIL PROPERTIES

In order to determine onsite soil properties samples were obtained throughout the drilling depth of 105 ft. for an exploratory drill hole located near the low gradient point of the existing active area.

Data from the drill holes and topographic information indicate granular surface soils within the active area exist to a depth of at least 30 ft. All samples throughout the drilling depth were classified by the driller at the time of extraction. Results indicate surface material is comprised of sandy gravels to a depth of 25 feet. The surface material is underlain by a layer of conglomerate and finer grained soils eventually being dominated by clays and shales. Exhibit 6 provides additional data concerning onsite soils.

GROUNDWATER

No groundwater was encountered during the drilling operations. The drill hole was located just west of the active area and was extended to a depth of 105 ft. Information regarding depth to groundwater, aquifers, directional flow rate and water quality data is not available. No wells are located in close proximity to the landfill.

WELLS AND WATER RIGHTS

Contact was made with the State Engineer's office to determine quantity, location, and construction of any private and public wells within 2000 feet of the proposed site. No wells were identified within the surveyed area. An expanded search determined that no well or underground water right exists within one mile of the landfill. Considering 1) impermeability of onsite soils, 2) limited precipitation in the area, and 3) existing drainage patterns, the landfill is considered to be hydraulically isolated.

An examination of surface rights in the area was also conducted by the State Engineer's office. Four surface rights were found within one mile of the landfill. Only two of the rights are located within 2000 ft. of the facility. Each of the water rights is located in close proximity to the East Fork of the Virgin River and is on the opposite side of US 89. These surface rights are located approximately 1875 ft. northeast and 1625 ft. northwest for the landfill. Exhibit 7 is the documentation provided by the State Engineer. Information is not available regarding background and surface water quality assessments in the area.

SURFACE WATERS

No perennial streams, rivers, or permanent surface waters exist within close proximity of the proposed landfill. The closest perennial surface water is the East Fork of the Virgin River located approximately 1,000 ft. north of the landfill and which has a flow line approximately 300 feet below the final elevation of waste. One unnamed intermittent wash parallels the eastern boundary and is located one eighth of a mile from the landfill. The drainage flows only during times of runoff or heavy precipitation. It should be noted that the wash is well beyond the landfill boundary and is for all purposes hydraulically isolated from the landfill. Other washes in the area are small, insignificant drainages that have formed in the native soil. All intermittent washes and surface waters will be prevented from impacting areas of the landfill which have received solid waste for events smaller than the 25-year storm period.

WATER BALANCE

Numerous water balance calculations have been performed for various landfills in the region and are on file with the Division of Solid and Hazardous Waste. Results at nearby landfills indicate no leachate was generated in the bottom 10 ft of waste during a 50 year evaluation period. White Mesa Landfill's HELP Model simulations indicate nearly 100 years are required for leachate to reach the landfill bottoms when considering worst case scenarios. Actual conditions will result in a lower production of leachate than predicted by previous modelling.

Recent changes in federal regulation and Utah State law exempt small landfills in arid regions from groundwater monitoring requirements. The Long Valley Sanitary Landfill will receive less than 20 tons of waste per day, is located in an area that receives less than 25 inches of precipitation per year, and is more than 100 feet from the nearest groundwater aquifer.

POTENTIAL GROUNDWATER CONTAMINATION

As a small, arid facility the Long Valley Landfill is exempt from groundwater monitoring requirements. The landfill receives less than 20 tons of waste per day, receives less than 25 inches of precipitation per year and is located more than 100 ft. above existing groundwater aquifers. Based on Utah State regulations, these characteristics exempt the facility from groundwater monitoring requirements.

In addition, there is no potential for migration of hazardous constituents from the facility to the groundwater during the active life of the facility and during the post closure period. This conclusion is supported by three separate analysis: 1) onsite geologic and hydrologic conditions, 2) water balance and leachate production modeling, and 3) operational practices which minimize the amount of water that can come in contact with the waste. Each analysis makes its own strong argument for suspending groundwater monitoring requirements.

Onsite geologic and hydrologic conditions demonstrate a diminimus potential for hazardous constituents reaching groundwater resources. Drilling operations indicate a complete absence of groundwater for a depth of 105 ft. Beginning at a depth of 25 ft., permeabilities significantly decrease along with particle size, eventually reaching a dense, impermeable clay/shale formation at a depth of 65 feet. The 35 feet thick impermeable layer will preclude the downward movement of any leachate and prevent any potential contamination.

In addition to favorable soil conditions and depths to groundwater which minimize the potential for liquid migration, local climatic conditions eliminate the production of significant amounts of leachate. Average annual precipitation is only 15.5 inches per year, and potential evapotranspiration exceeds precipitation by more than 300%. The lack of significant moisture passing beyond the vegetative zone is evidenced by the sparsely grown surface plants which are limited by minimum amounts of moisture.

Water balance and leachate production modelling also demonstrate a diminimus potential for hazardous constituents reaching groundwater resources. Regional HELP model analysis described above indicates several centuries of worst case conditions would be required for leachate to be produced in sufficient quantities to result in the migration of any liquid to the groundwater. Worst case scenarios were developed with numerous safety factors including extended open operation, a 40 year post closure period, use of free draining materials instead of impermeable onsite materials, containment of all precipitation to infiltrate the cover, bare ground conditions during a 10 year open period, and uncompacted cover material. In spite of these considerable efforts to create leachate production, results indicate the potential for hazardous constituents reaching the groundwater does not exist. Actual conditions will result in a greater level of confidence and a lower production of leachate than identified by the model.

Operational practices will also reduce the amount of water that could possibly come in contact with the waste. Surface waters will be diverted by a series of ditches and berms designed to protect landfill cells from run on water for storms considerably greater than the 25 year event. The size and progression of the units will result in cells being brought to final elevation and closed in the minimum amount of time possible, reducing the amount of water entering the waste. Contouring operations will reduce ponding and promote drainage away from active areas; use of alternate daily covers may prevent the infiltration of limited precipitation into the waste. The limited working face will require the removal of any snow from the active area, so incoming waste can be deposited. All of these measures result in the reduction of an extremely limited source of moisture.

Considering onsite geologic and hydrologic conditions, water balance and leachate production modelling, and operational practices which reduce the amount of water contacting the waste, groundwater monitoring and vadose zone monitoring are not justified. In fact installation of monitoring wells may provide a more viable conduit for groundwater contamination.

PRELIMINARY ENGINEERING REPORT

SITING CRITERIA

The proposed Long Valley Sanitary Landfill complies with siting criteria currently mandated by regulation and recognized by the State of Utah Solid and Hazardous Waste Committee. Specifically, no airport is located within 10,000 feet of the proposed landfill. The site is free from unstable areas and is not located within a 100-year floodplain or in any wetland. In addition to federal mandated criteria, the site is compatible with existing land uses for long term landfill operation and is in a remote area free from dwellings and other incompatible structures such as churches, schools, hospitals, etc.. Cultural resources within the landfill will be mitigated in accordance with State Historic Preservation Officer requirements.

SOLID WASTE MANAGEMENT COMPLIANCE

The Kane County Solid Waste Management Plan required by Senate Bill 255 identifies the need for repermitting and or development of landfills capable of long term service in the planning area. The plan further recommends that development of the landfill be made a top priority in the coming years. The Long Valley Sanitary Landfill is the partial fulfillment of that recommendation and is in complete compliance with the County's Solid Waste Management Plan.

LINER DESIGN

Current volumes of solid waste disposed by generators serviced by the Long Valley Sanitary Landfill are well below 20 tons per day, and the facility is eligible for small landfill design exemptions. These exemptions include liner design; no liner is proposed for the landfill at present.

Although the Long Valley Sanitary Landfill is exempt from liner requirements, landfill operators have traditionally borrowed material from nearby clay sources to line new areas. Operators will continue this practice while economically viable sources exist and adequate equipment and manpower exist.

BORROW SOURCES

The Long Valley Sanitary Landfill will generally utilize onsite borrow materials for daily cover, final cover, and soil liners. Current estimates indicate adequate material is available within the landfill limits. Initial cell location utilizes excavated on site material and provides for ongoing borrow operations. Onsite soils will be augmented with existing offsite borrow sources. These

borrow sources have been a valuable clay source during the operation of the existing facility and will continue to be used to their greatest utility.

LEACHATE COLLECTION, TREATMENT AND DISPOSAL

The Long valley Sanitary Landfill is a natural attenuation facility located in an arid region with favorable soil conditions. Regional water balance calculations indicate a diminimus volume of leachate will be generated at the landfill. Nearby HELP Model simulations for an area left open to precipitation for 5 years indicate waste would be at wilting point during several periods of each year. The model also demonstrated an absence of leachate during the 5-year simulation. As a Class II facility with groundwater more than 100 ft. deep, the landfill is exempt from leachate and collection design requirements.

LANDFILL GAS CONTROL AND MONITORING

Due to the arid nature of the climate at the Long Valley Sanitary Landfill and the nature of the waste accepted at the facility, landfill gas concentrations are not anticipated to reach significant levels. The Executive Secretary is requested to waive requirements to monitor landfill gas. Monitoring requirements inside buildings will be met by installing methane detectors in any building on the landfill site.

The waiver is justified because characteristics at the landfill prohibit generation of landfill gases in amounts that will pose a threat to human health or the environment. As described above, climate at the landfill is dry. Evapotranspiration exceeds precipitation by approximately 20 inches. The largest precip-itation events occur in the form of thundershowers which result in a significant amount of the moisture running off the site prior to contacting the waste. These climatic conditions coupled with relatively dry waste and soils which help absorb moisture eliminate the production of significant amounts of landfill gases.

Should unacceptable levels of landfill gases be detected in buildings, contingency plans described in other areas of this permit will be implemented.

CELL DESIGN AND OPERATION

The Long Valley Sanitary Landfill is designed to minimize active areas and to reach final elevation as soon as practical in order to minimize infiltration and leachate generation. The cells are designed to accommodate from two to five years of waste and to expand in an orderly fashion from west to east.

Cells will be approximately 30 feet in depth, and bottom widths will range from 40 feet to

200 feet. Length of the cells will vary with volumes of waste, season of the year, and soil stockpile needs; but initial excavation will approximate 200 feet. Current proposals contemplate providing a minimum of 1 year excess excavated area for growth and unexpected problems. Interior side slopes will originally be 4:1 and may be steepened to 2:1 immediately before receiving waste to expand capacity and augment covering operations.

Near the close of each working day waste will be spread, compacted, and covered with 6 inches of native soil or an alternate daily cover. When daily waste volumes are too small to permit efficient use of landfill space, solid waste will be stockpiled at the working face and covered with an alternate daily cover (a synthetic blanket designed to prevent infiltration).

The 30 foot cell height described earlier is a nominal dimension and does not consider final slopes to promote drainage or additional covering requirements. Cells are anticipated to consist of solid waste compacted in lifts ranging from 7 feet to 12 feet and covered with 6 inches to 12 inches of daily or intermediate cover material. Three lifts may be accommodated in the nominal height.

Minimum equipment requirements at the Long valley Sanitary Landfill are limited to a track-type loader for daily operations and periodic use of additional equipment (dozer, scraper, grader, compactor, etc.) for specific covering, stockpiling, contouring and compacting operations. Initially, the facility will have equipment mobilized to the site as needed and will utilize other equipment from the District equipment pool as needed. Over time, adequate equipment will be acquired to guarantee the needs of the landfill will be met in a timely manner. Exhibit 8 is an illustration of the proposed cell progression. Exhibit 9 is a conceptual design of a typical cell.

CLOSURE AND POST CLOSURE

Closure operations will be performed on an ongoing basis. When a portion of a cell attains final elevation, and sufficient working area exists to place final cover, closure operations will be initiated. Initially, final cover will consist of 18 inches of material having a permeability of 1×10^{-5} cm/sec or less and 6 inches of native soil. An alternate cover system may be implemented, if it can be demonstrated it meets applicable standards. Construction of the final cover will be performed with onsite personnel or may be contracted with private enterprise.

Closed portions of the landfill will be randomly inspected as part of the quarterly reviews performed by the landfill operator. Closed areas will also be inspected as part of the in depth annual inspection. Any deficiencies will be repaired as soon as practical. For those failures which jeopardize the environmental integrity of the facility or permit the uncontrolled infiltration of significant amounts of moisture, corrective measures will be initiated immediately.

No alternate land use for closed sections has been developed to date. Closed cells will remain under the jurisdiction of the landfill manager. If alternate land use plans are developed they

will be addressed during the permit renewal process, or a separate permit modification may be submitted.

CLOSURE PLAN

CLOSURE SEASON AND YEAR

Closure operations at the Long valley Sanitary Landfill will be performed on an ongoing basis. Adequate capacity exists at the landfill to continue operation for many years. A final closing date cannot be determined at this time. Ongoing closure operations will generally be performed from May through October, the normal frost free construction period, or as weather permits. No area larger than 2 acres that has achieved final elevation will remain open longer than 6 months. Water balance calculations in the area indicate the lowest moisture content of the waste occurs during the late summer/early fall months.

FINAL COVER, SEEDING, CONTOURING

Closure operations will consist of leveling, contouring, placement of appropriate covers and seeding as necessary to reduce infiltration and preserve the integrity of the completed areas of the landfill. Areas of the landfill reaching final elevation will be closed within 6 months. Closure operations will include leveling and contouring using intermediate cover to reduce infiltration and ponding. Excess material may be stripped and utilized in other operations or left in place. After grading operations promoting drainage are complete, a geosynthetic clay liner or 18 inches of material with a permeability of 1×10^{-5} cm/sec or less will be installed. Alternate designs meeting the performance standard of impermeable material may be used if approved by the Executive Secretary prior to placement. Upon completion of the impermeable cover, 6" of native material similar to existing topsoil will be placed and seeded. The seed mixture shall be developed after consultation with range specialists and verifying availability of local seed markets. Recently closed sections of the landfill will be evaluated as part of the quarterly inspection process during the first year and then placed on postclosure status.

SITE CAPACITY

Site capacity for the entire Long valley Sanitary Landfill cannot be accurately estimated. Assuming a 40 acre parcel, trench style operation (40 ft. bottom width, 4:1 side slopes, 30 ft. depth), three 8.5 foot lifts of waste with 1.5 foot intermediate cover, and an average density of 900 lbs. per cubic yard, waste volumes can be estimated at 1,056,000 cubic yards or 475,200 tons.

ACTIVE FILL VERSUS CLOSED AREA

The active area of the Long valley Sanitary Landfill is not anticipated to exceed 1.5 acres,

with normal operations generally confined to less than 1.0 acre. The closed portion of the landfill will initially be 0 acres and may increase as much as 1.0 acre per year during the life of the facility. For the five-year life of this permit the closed to active ratio would range from 0 to 3.3.

CLOSURE TIMING AND NOTIFICATION

Closure activities at the Long valley Sanitary Landfill will be performed on an ongoing basis. The Executive Secretary will be notified of closure progress by reviewing quarterly and annual reports, and by contacting Division of Solid and Hazardous Waste inspectors who have visited the site. Considering the ongoing nature of closure operations and the justification for performing closure operations as a cell reaches final elevation, alternate notification procedures may not be feasible.

In addition to the ongoing notification indicated above, The Executive Secretary will be notified in writing prior to initiation of final cover operations, and the final cover design and the construction quality assurance/quality control (QA/QC) plan will be submitted to the Executive Secretary for review and approval. The QA/QC plan for closure will include tests for permeability and depth. Permeability tests, where required, will be performed at the rate of test per 3000 cubic yards of material and will randomly selected throughout the working area. Permeability tests may include in field or laboratory tests, nuclear density extrapolations, or other industry wide procedures and practices. Depth tests will utilize standard cross section survey methods and will be performed at a rate equal to or greater than tests performed for permeability. Closure as-builts and certification of closure according to the plan identified above will be signed by a registered professional engineer and forwarded to the Executive Secretary within 90 days of completion.

INSPECTIONS

Inspections by regulatory agencies shall be as described in other sections of this permit. The permittee shall allow the Executive Secretary of the Utah Solid and Hazardous Waste Control Board or an authorized representative, including representatives from the local District Health Department, upon representation of credentials, to enter during operating hours and/or inspect at reasonable times any facilities, equipment, practices, or operations regulated or required under this permit.

A record of the inspection may be made by photographic, videotape, electronic or other reasonable means and a copy of any such record shall be provided to the owner and the operator.

CLOSURE COSTS AND MECHANISMS

Closure costs and the recommended mechanism are described in the Financial Assurance Plan contained in other sections of this document. Closure /post closure costs are estimated at

\$20,225.00. The District has established a dedicated escrow account with the State Treasurer's Office to meet financial assurance requirements.

POST CLOSURE PLAN

SITE MONITORING

No permanent monitoring devices are proposed for the Long Valley Sanitary Landfill. Landfill gas in closed sections will be monitored as described for active cells in the Preliminary Engineering Report section of this document. The landfill is exempt from gas monitoring requirements.

No groundwater monitoring wells, lysimeters, vadose zone equipment or other monitors are planned for this facility. Surface waters in closed portions of the landfill will be evaluated as part of the annual inspection. Monitoring will be limited to identifying situations which promote infiltration. Self inspections will be conducted by landfill personnel on a regular basis as part of the quarterly inspection process.

LAND TRANSFERS AND USES

Plats and a statement of fact concerning the location of any disposal site for the landfill will be recorded as part of the record of title with the county recorder no more than 60 days after certification of closure. The District will comply with additional requirements established by the local zoning authority.

INSPECTIONS

Inspections by regulatory agencies shall be as described in other sections of this permit. The permittee shall allow the Executive Secretary of the Utah Solid and Hazardous Waste Control Board or an authorized representative, including representatives from the local District Health Department, upon representation of credentials, to enter during operating hours and/or inspect at reasonable times any closed facilities, equipment, practices, or operations regulated or required under this permit.

A record of the inspection may be made by photographic, videotape, electronic or other reasonable means and a copy of any such record shall be provided to the owner and the operator.

Landfill gas monitoring will be conducted on a continually. Concentrations will be measured at each onsite structure and at the property boundary. The Executive Secretary may reduce the inspection frequency if it can be demonstrated that landfill gas is not being generated. In addition to the landfill gas monitoring, inspections will include evaluation of soil and vegetative covers, identification of infiltration, settlement, and erosion problems and examination of fencing and gates. Any significant deficiencies with recommended corrective actions and proposed schedules will be identified in the inspection report and submitted to the Executive Secretary for approval.

RUNON AND RUNOFF SYSTEMS

No active or technical devices are proposed to control runon and runoff systems at the Long valley Sanitary Landfill. No surface waters exist in close proximity to the landfill. Native soils, regional hydrology, and topography near at the site prevent the run on of all surface waters resulting from a minimum flow of a 25 year storm into the active area of the landfill. Best management practices will be implemented to minimize infiltration and assure the integrity of the runon/runoff system. Evaluation of the system will be made during the quarterly and annual inspection, and corrective measures, if any, will be implemented. Runon and runoff from events smaller than the 25-year storm will be controlled.

POST CLOSURE COST AND MECHANISM

Post closure costs were estimated using projections for a third party to perform the work and considering the largest area of the disposal facility requiring final cover during the operating period. Estimates considered diminishing costs as the landfill stabilized. Cover stabilization consisted of 60 hours of equipment time spread over the initial four years. Projections for vegetative stabilization included reseeding three years into the post closure period. Inspection / Reporting costs assumed a total of 75 hours with annual totals ranging from one to four hours per year. Total post closure costs for the Long Valley Sanitary Landfill are:

Groundwater Monitoring	Not Required
Leachate Monitoring and Treatment	Not Required
Gas Control	Included in Other Items
Cover Stabilization - 60 hrs @ \$70	\$4,200
Vegetative Stabilization -	\$1,300
Inspection / Reporting - 75 hrs @ \$75	<u>\$5,625</u>
Total 30 Year Post Closure Cost	\$11,125

The District has elected to meet financial assurance requirements by establishing a dedicated escrow account with the State Treasurer.

PLAN OF OPERATION

INTRODUCTION

This document constitutes the plan of operation for the Long valley Sanitary Landfill and is intended to comply with guideline R315-302-2(2) of the Utah Division of Solid and Hazardous Waste Administrative Rules. Technical questions and comments may be directed to:

Brian B. Bremner, P.E.
P.O. Box 59
Panguitch, Utah 84759
Phone (801) 676-1119

INTENDED SCHEDULE OF CONSTRUCTION

The Long Valley Sanitary Landfill is capable of meeting solid waste disposal needs for the District for many years. The landfill is operating, so the intended construction schedule contemplates continuing operations throughout the active life of the landfill. The current cell is planned for a capacity of approximately 5 years and will be expanded in an ongoing manner as portions of the cell attain final elevation. A schedule listing major activities for the next 5 years of operation is found below. The schedule may be updated as part of the regular permit review process.

August 1, 2003	Submit revised permit from Solid and Hazardous Waste.
Oct. 1, 2003	Obtain revised permit
August, 2003 to August, 2008	Close portions of the landfill reaching final elevation and expand cell to provide additional disposal space.

HANDLING PROCEDURES

During the active life of the landfill material designated for disposal will be brought to the working face where it will be dumped, spread, and compacted. No later than the end of each day's operation, waste will be covered with a minimum of 6 inches of earthen material, or with an alternate daily cover approved by the Executive Secretary. Currently proposed alternate daily covers include a temporary synthetic cover (tarp) with a minimum nominal thickness of 8 mils and a minimum tensile grab strength of 100 lbs. The cover will be removed at least weekly, and waste will be covered with 6" of earthen material. Covering operations shall minimize the possibility of

infiltration. Procedures for the handling of specific wastes including but not limited to dead animals, large appliances, car bodies and asbestos are delineated in Administrative Rules R315-315. Dead animals will be deposited onto the working face near the bottom of the cell with other solid waste and covered with a minimum of 6 inches of earth. Scavenging will not be permitted at the site.

INSPECTIONS AND MONITORING

Inspection and monitoring at the Long Valley Sanitary Landfill will be conducted in two components: 1) routine and 2) compliance. Routine inspections will be conducted on incoming material on a random basis to prohibit receipt of unacceptable wastes. In addition, random checks will be made during deposition, spreading, and covering operations to insure protection of the environment and absence of nuisances. Unacceptable waste screening inspections will be made by trained personnel on 1% of the public using the facility and will be recorded on the appropriate forms (see Exhibit 4b). Operational inspections will be made by supervisory landfill personnel.

Compliance inspections will be conducted quarterly to assess the integrity of cover, the condition of side slopes and vegetative cover, and the impacts of erosion. In addition, a detailed annual inspection will be conducted to verify compliance with all permit conditions and state and federal regulations.

FIRE/EXPLOSION CONTINGENCY PLAN

Shortly after permit renewal and as weather permits, an alternate disposal site capable of storing one month's waste will be developed. In the event of a fire or an explosion that prohibits deposition of incoming waste in the existing cell, materials received at the landfill will be diverted to the alternate storage site and be covered with an alternate daily cover. Upon resolution of the unexpected event, the material will be transported to its final disposal destination and treated as incoming waste.

Landfill fires and explosions are difficult to control and require different techniques than many incidents handled by local volunteer fire departments. For this reason fires and/or explosions at the Long Valley Sanitary Landfill will be managed by landfill personnel. However, local fire departments will respond to provide assistance if requested by the landfill manager. The outline for procedures to follow in case of fire or explosion is:

1. Secure Affected Area
2. Divert Incoming Waste
3. Isolate Fire / Explosion
4. Suppress Incident if Possible
5. Request Additional Assistance if Needed
6. Report & Record Necessary Information

CORRECTIVE ACTION FOR CONTAMINATED GROUND WATER

This section describes corrective actions to be taken by owners and operators to regain compliance with protection levels for the Long Valley Sanitary Landfill in the event concentration limits are exceeded in a down gradient well as a result of landfill operations.

No monitoring wells are proposed for the Long Valley Landfill. However, if the concentrations of parameters in down gradient wells exceed the concentration limits as a result of landfill operations and as substantiated by confirmatory analyses, owners and operators of the Long Valley Sanitary Landfill will implement a corrective action program as outlined in R315-308.

CONTINGENCY PLAN FOR OTHER RELEASES

This section describes corrective actions to be taken by the Long valley Sanitary Landfill to regain compliance with the protection levels of the permit in the event releases are discovered and acceptable concentration limits are exceeded.

When the concentration of parameters exceed acceptable limits as substantiated by confirmatory analyses, owners and operators of the Long Valley Sanitary Landfill will implement a corrective action program approved by the Executive Secretary.

EQUIPMENT MAINTENANCE

Active collection systems for leachate and or explosive gases are not proposed for the Long Valley Sanitary Landfill. Therefore, no maintenance will be required for these items. Maintenance of equipment used in day to day operations will be performed by landfill employees or contracted mechanics in accordance with manufacturers recommendations and industry practices.

DUST CONTROL / AIR QUALITY

Fugitive dust is not anticipated to reach unacceptable levels at the Long Valley Sanitary Landfill. If fugitive dust exceeds acceptable levels, actions will be implemented to reduce dust. These actions may include watering access roads, developing wind breaks, altering management scenarios, or other appropriate measures.

RUNON/RUNOFF CONTROL

The District will control the runon and runoff resulting from the 25 year event from contacting solid waste and leaving the landfill. This will be accomplished through a series of best

management practices. Each cell will be surrounded with berm style stockpiling of excess excavated material. The berms will be at least 2 feet nominal height and will prevent unanticipated flow of surface waters into the active areas of the facility.

In addition to the berms, access roads and ditches will be placed around the cells as needed. The roads will include appropriate ditches and culverts designed to direct surface drainage to desired areas. Any minor intermittent washes which exist onsite will also be redirected away from active areas of the landfill.

EXCLUSION OF HAZARDOUS WASTE

As a small rural landfill, the Long Valley facility is in a favorable position regarding exclusion of hazardous waste. During periods when the landfill is not open to the public, waste will be observed as it is removed from the collection vehicle. The waste will be further examined for hazardous materials as it is being spread by the operator and compacted. Appropriate notations regarding hazardous waste will be made on the Daily Record forms. If unacceptable hazardous materials are found, the collection vehicle driver will be notified and the unacceptable substance will be removed from the landfill.

During periods when the landfill is open for public disposal at least one percent of the vehicles (but not less than 1 vehicle per week) and other suspicious loads will be directed to dispose of their material near the working face. The waste generator will be detained while the load is inspected; if hazardous substances are encountered they will be reloaded, and appropriate authorities will be contacted. Considering population served, waste volumes generated, and complexity of the solid waste stream these measures are considered to be adequate.

A section documenting the results of the formal inspections outlined above has been included as part of the daily record forms (see Exhibit 4b). Including hazardous/PCB waste records on the daily record forms will allow landfill managers to incorporate inspections into their daily routine and will permit regulators to review inspection patterns efficiently while examining waste volumes.

DISEASE VECTOR CONTROL

The primary method for disease vector control at the Long Valley Sanitary Landfill will be providing appropriate cover at the close of each day's operation. The cover will consist of a 6 inch minimum layer of earthen material or an alternate daily cover.

Rodents and other vermin will not be permitted to burrow in the active area of the landfill; and trapping or extinction methods will be implemented to protect the integrity of the disease vector control program.

ALTERNATIVE DISPOSAL

Alternative waste handling procedures for periods when the landfill is not in operation will be similar to procedures for fires and explosions. Waste will be deposited in the alternate disposal site and covered with an alternate daily cover. Procedures will continue in this manner until operations at the landfill can return to normal.

In the event of equipment breakdown that cannot be repaired in a reasonable time frame, equipment will be borrowed from contributing entities or leased from local distributors. It is the intent of owners and operators to have dedicated equipment at the landfill over a period of time and to acquire appropriate backup equipment.

CLOSURE/POST CLOSURE

Closure of active portions of the Long Valley Sanitary Landfill contemplates controlling, minimizing, and eliminating threats to human health and the environment from post closure escape of solid waste constituents, contaminated runoff, or waste composition products to the ground, groundwater, surface water, and the atmosphere. When an area of the landfill exceeding 10,000 square yards reaches final elevation it will be covered within 60 days with 12 inches of intermediate cover and graded to promote drainage. The surface shall be free from ponding and shall minimize infiltration. Not more than 6 months after completion of the intermediate cover, the area will be covered with a minimum of 18 inches of material having a hydraulic conductivity of less than 1×10^{-5} cm/sec. The impermeable barrier will be covered with 6 inches of native soil or 6 inches of material capable of supporting vegetative growth.

Post closure care of inactive sections of the landfill will consist of maintaining the integrity of the final and vegetative covers. Any areas subject to erosion will also be corrected; and appropriate measures will be implemented to identify and eliminate the source. Groundwater monitoring, leachate collection, and gas collection are not proposed for the Long Valley Sanitary Landfill. Therefore, closure and post closure activities associated with these functions will not be performed.

FINANCIAL ASSURANCE

A financial assurance plan has been developed for the Long Valley Sanitary Landfill and is contained in other sections of this document. The plan consists of passing the local government test, thus insuring sufficient funding is available within 5 years of notification for the closure and post closure care of the largest area of the landfill that is active at any time. Cost estimates were developed considering a third party performing the work.

TRAINING AND SAFETY PLAN

Currently two District employees involved with the Long Valley Sanitary Landfill have participated in the Manager of Landfill Operations Training Course and the Waste Screening Training Course provided by the Solid Waste Association of North America (SWANA). Limited training and educational experience exists for operators of rural landfills; however, employees will be encouraged to attend appropriate seminars and training as time and budgets permit. All landfill employees have been provided with timely and sufficient training to operate the landfill within regulatory requirements. New landfill employees will also be provided with timely and sufficient training to operate the landfill within regulatory requirements. Training opportunities include access to SWANA training materials, on site training from certified managers, random training from landfill owners, and training from state regulatory staff during on site inspections.

Safety procedures will conform to OSHA guidelines; and personnel will be encouraged to participate in additional landfill management, waste screening, safety, and first aid workshops.

RECYCLING

No viable recycling markets currently exist for solid waste disposal at the Long Valley Sanitary Landfill. In an effort to promote recycling some compostable material may be diverted to areas designated for Class IV operation. However, no formal recycling program is anticipated for this facility.

ACCESS CONTROL & ONSITE PERSONNEL

Fencing has been placed on the main access road East of U.S. 89. The fence includes a lockable gate provided at the entrance to the unit. The absence of any roads and existing topography on the remaining sides of the landfill eliminate the possibility of unauthorized vehicular traffic.

Landfill personnel will be onsite during all hours the facility is open to the public. The proposed schedule for initial operation of the Long Valley Landfill is:

Monday, Wednesday, Friday	4 pm. to 7 pm.
Saturday	1 pm. to 5 pm.

Collection vehicles may be entering the landfill when the facility is not open to the public. Waste will not be accepted from the public during these periods. The proposed schedule is currently in operation at the District's existing facility and is functioning adequately. The District intends to revise the scheduled operation of the landfill as the need arises and solid waste volumes dictate.

LITTER CONTROL

Litter is controlled through use of best management practices. Active areas and working faces are limited; waste is covered shortly after deposition; and blowing trash is confined as much as practical. Any litter at the perimeter of the landfill will be picked up by hand.

FINANCIAL ASSURANCE PLAN

INTRODUCTION

This section of the permit describes compliance with Subsection R315-309, Financial Assurance of the Administrative Rules for Solid Waste Permitting and Management. Cost estimates consider the most expensive option during the period and are based on a third party performing closure and post closure care.

MECHANISMS

The initial mechanism proposed for use at the Long Valley Sanitary Landfill is establishing a dedicated escrow account with the State Treasurer. Funds in excess of the estimate listed below may be used for capital improvements, to offset rate increases, operational expenses and other items deemed necessary by landfill managers only after requirements for closure and post closure are complete. The District may alter the mechanism to include the government test, insurance, surety bonds, trust funds, or other options as they become feasible.

SCHEDULE OF PAYMENTS

The Western Kane County Special Service District has made payments to a dedicated escrow account with the State Treasurer's office to insure the availability of sufficient funds for closure and post closure care. The fund balance exceeds the minimum \$20,225.00 minimum balance.

COST ESTIMATE

Cost estimates were developed considering the largest area of the disposal facility requiring final cover during the operating period and using projections for a third party to perform the work. A cost estimate detailing major closure and post closure components is included below. The Executive Secretary shall be identified as a required signatory on all withdrawals, and transactions affecting the integrity of the account shall be submitted to the Executive Secretary for approval.

Closure Costs

Final Cover	3000 cu. yds. @ \$2.00		\$6,000
Final Grading	1.50 acres @ \$300.00	450	
Topsoil	1000 cu. yds. @ \$1.25		1,250
Revegetation	1.50 acres @ \$400.00	600	
Contingency	10%		<u>800</u>
Total Closure Costs			\$9,100

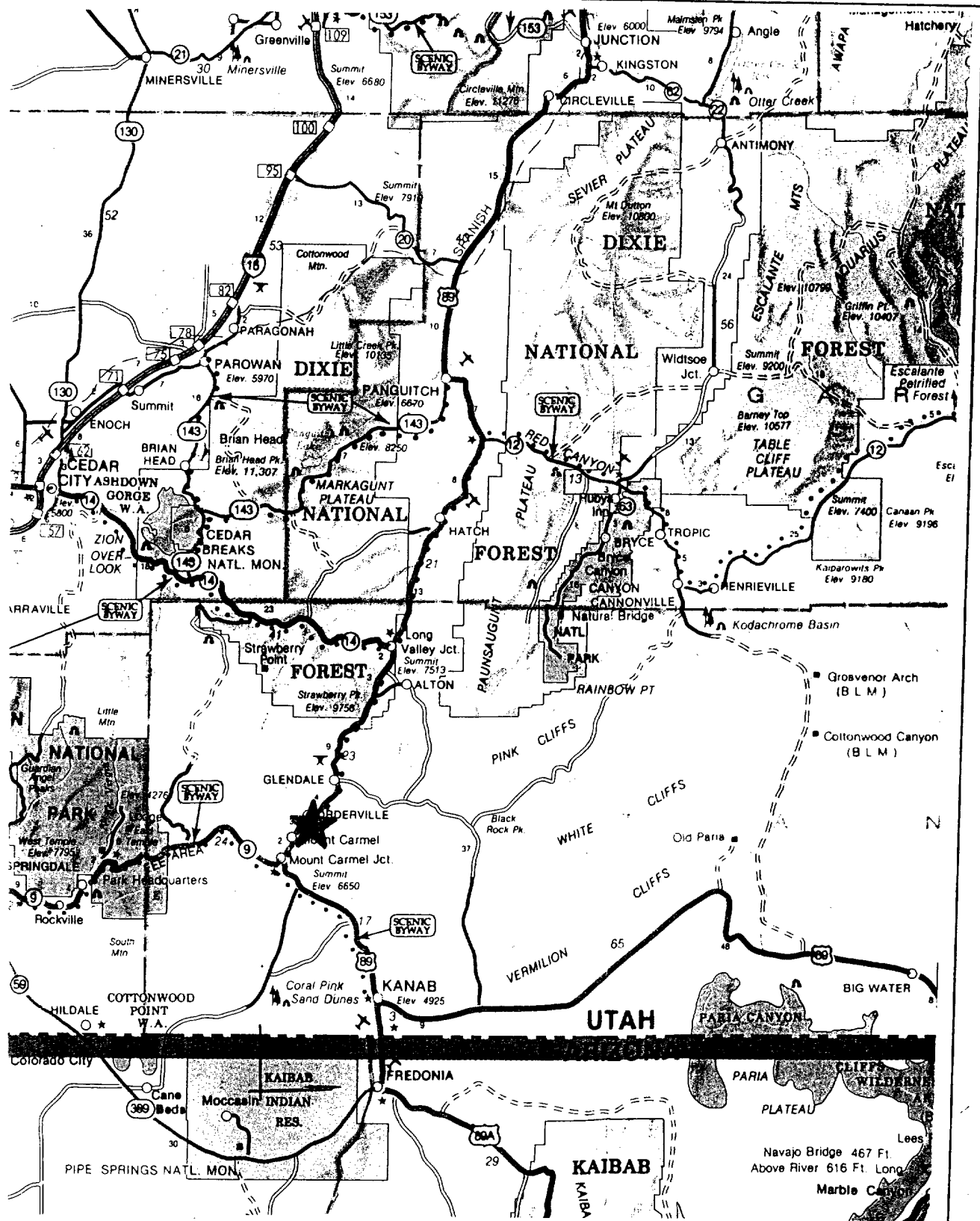
30 Year Post Closure Costs

Groundwater Monitoring	Not Required
Leachate Monitoring and treatment	Not Required
Gas	Included in Other Items
Cover Stabilization - 60 hrs @ \$70	\$ 4,200
Vegetative Stabilization -	1,300
Inspection / Reporting - 75 hrs @ \$75	<u>5,625</u>
Total 30 Year Post Closure Cost	\$11,125

Closure Cost	\$9,100.00
Post Closure Cost	<u>\$11,125.00</u>
TOTAL ASSURANCE	\$20,225.00

EXHIBITS

Exhibit #1:	General Vicinity Map
Exhibit #2a:	Project Location Map
Exhibit #2b:	Property Deed
Exhibit #3:	Service District Boundaries
Exhibit #4a-4b:	Daily Record Form
Exhibit #5:	Quarterly Inspection Log
Exhibit #6:	Onsite Soil Data
Exhibit #7:	Well and Water Right Documentation
Exhibit #8:	Proposed Cell Progression
Exhibit #9:	Conceptual Cell Design
Exhibit #10:	Summarized Drill Logs
Exhibit #11:	Topographic Maps
Exhibit #12:	Geologic Maps



LONG VALLEY SANITARY LANDFILL

Exhibit 1. General Vicinity Map

T40S

Glendale

River

LONG
VALLEY
LANDFILL

R6W

LONG VALLEY SANITARY LANDFILL

Exhibit 2a. Project Location Map

The United States of America

To all to whom these presents shall come, Greeting:

Serial: Utah 60070

WHEREAS,

Western Kane County Special District No. 1

is entitled to a land patent pursuant to Section 203 of the Act of October 21, 1976, 90 Stat. 2750; 43 U.S.C. 1713, for the following described land:

Salt Lake Meridian, Utah

T. 40 S., R. 7 W.,
Sec. 26, SE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$.

Containing 10.00 acres

NOW KNOW YE, that there is, therefore, granted by the UNITED STATES, unto the above named claimant the land above described: TO HAVE AND TO HOLD the said land with all rights, privileges, immunities, and appurtenances, of whatsoever nature, thereunto belonging, unto the said claimant, its successors and assigns, forever;

EXCEPTING AND RESERVING TO THE UNITED STATES:

1. A right-of-way thereon for ditches and canals constructed by the authority of the United States. Act of August 30, 1890, (26 Stat. 391; 43 U.S.C. 945 (1970).
2. All minerals in the land described above, with the right to prospect for, mine, and remove the same under applicable law and such regulations as the Secretary may prescribe.

SUBJECT TO:

1. A right-of-way, Serial No. U-0794570, for a highway granted under the Act of August 27, 1958 (43 U.S.C. 317).
2. A right-of-way, Serial No. U-019787, for a telephone and telegraph line granted under the Act of February 15, 1901 (43 U.S.C. 959).



IN TESTIMONY WHEREOF, the undersigned authorized officer of the Bureau of Land Management, in accordance with the provisions of the Act of June 17, 1948 (62 Stat. 476), has, in the name of the United States, caused these letters to be made Patent, and the Seal of the Bureau to be hereunto affixed.

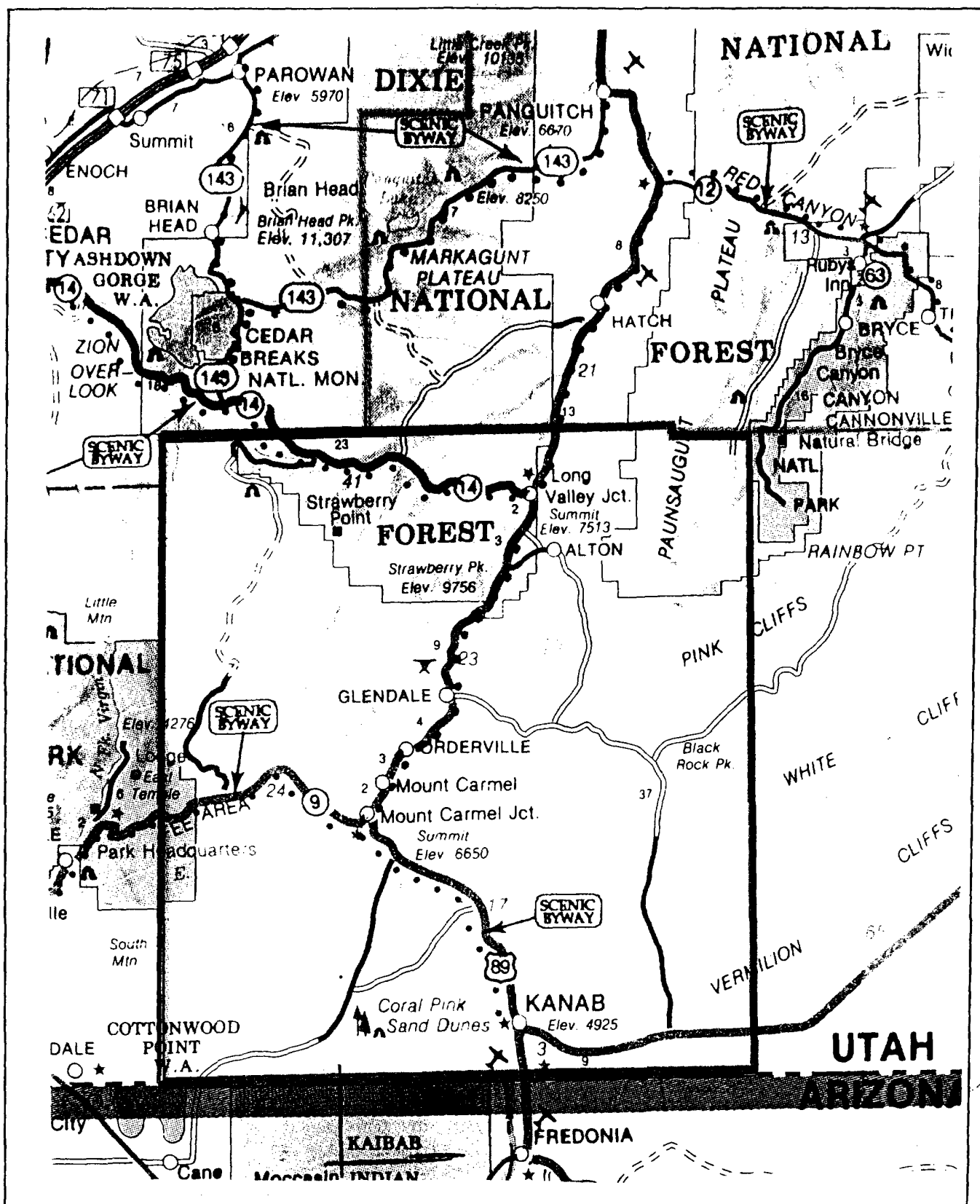
GIVEN under my hand, in Salt Lake City, Utah
the Sixteenth day of June
in the year of our Lord one thousand nine hundred and
Eighty-Nine and of the Independence of the
United States the two hundred and Thirtieth

By John Darwin Small
Chief, Branch of Lands and Minerals, Operations

Patent Number

43-89-0036

ENTRY NO. 65672
DATE AUG 14 1989
RECORDED AT REQUEST OF S.K.C. S.S.D.
AT 2:30 PM
BY



LONG VALLEY SANITARY LANDFILL

Exhibit 3. Service District Boundaries

LONG VALLEY SANITARY LANDFILL
Weight, Volume, and Vehicle Record

Date: _____ Day of Week: _____ Page ____ of ____

<u>Time</u>	<u>Vehicle No.</u>	Est. Volume <u>Cu. Yds.</u>	Est. Weight <u>Tons</u>	<u>Origin</u>	Type of <u>Waste</u>
-------------	--------------------	--------------------------------	----------------------------	---------------	-------------------------

Signature _____ Date _____

LONG VALLEY SANITARY LANDFILL

Exhibit 4a. Daily Record Form

HAZARDOUS WASTE / PCB INSPECTION RECORD

Date: _____ Time: _____ Vehicle No. _____

Random Selection: Yes / No Suspicious Load: Yes / No Other: _____

Vehicle Owner: _____

Name

Address

_____,

City, State

Phone

Waste Origin: _____

Waste Types: _____

Describe any hazardous or PCB wastes encountered: _____

Action Taken: _____

Comments: _____

If hazardous waste or PCB waste is encountered, contact the Division of Solid and Hazardous Waste at (801) 538-6170

Signature _____ Date _____

LONG VALLEY SANITARY LANDFILL

Exhibit 4b. Hazardous/PCB Waste Record Form

Long Valley Sanitary Landfill Quarterly Inspection Log

This document is the official form required for compliance with R315-301-7(5)(a) for the Long valley Sanitary Landfill.

Date _____ Time _____ Weather _____

Inspection Team: _____

Observations: _____

Date and Nature of Repairs/Corrective Action: _____

Other: _____

Explosive Gas Monitoring _____ Structures _____ Property Boundary

Training Procedures Completed: _____

Major Deviations from Plan of Operation: _____

Name of Inspector

Signature

This form shall be kept on site or at another convenient location if no permanent office facilities for a minimum of 3 years.

LONG VALLEY SANITARY LANDFILL

Exhibit 5. Quarterly Inspection Log



UNIZICKER & WELLS DRILLING

WELL DATA FORM

OWNER NAME

Orderville Land Fill

Hole #

1 DE1

Page

of

Well Log		WATER	PERMEABILITY	UNCONSOLIDATED					CONSOLIDATED		ROCK TYPE	COLOR	DESCRIPTIONS AND REMARKS (include comments on water quality if known.)
DEPTH (feet) FROM	TO			CLAY	SILT	SAND	GRAVEL	COBBLES	OTHER				
0	16	X				XX							
16	25	X				XX							
25	30		X								Conglomerate		
30	55		X			XX							
55	65		X			XX							
65	100		XX								Shale grey		
100	105		X								Shale Black		
												Total Depth 105'	
												Test hole diameter 5"	
												permeability test taken from:	
												0-25 6 bpm Total 6 bpm	
												25-50 1 bpm Total 6 bpm	
												Each section held level with water for 10 min. Lost water replaced every min.	
												No water encountered	

LONG VALLEY SANITARY LANDFILL

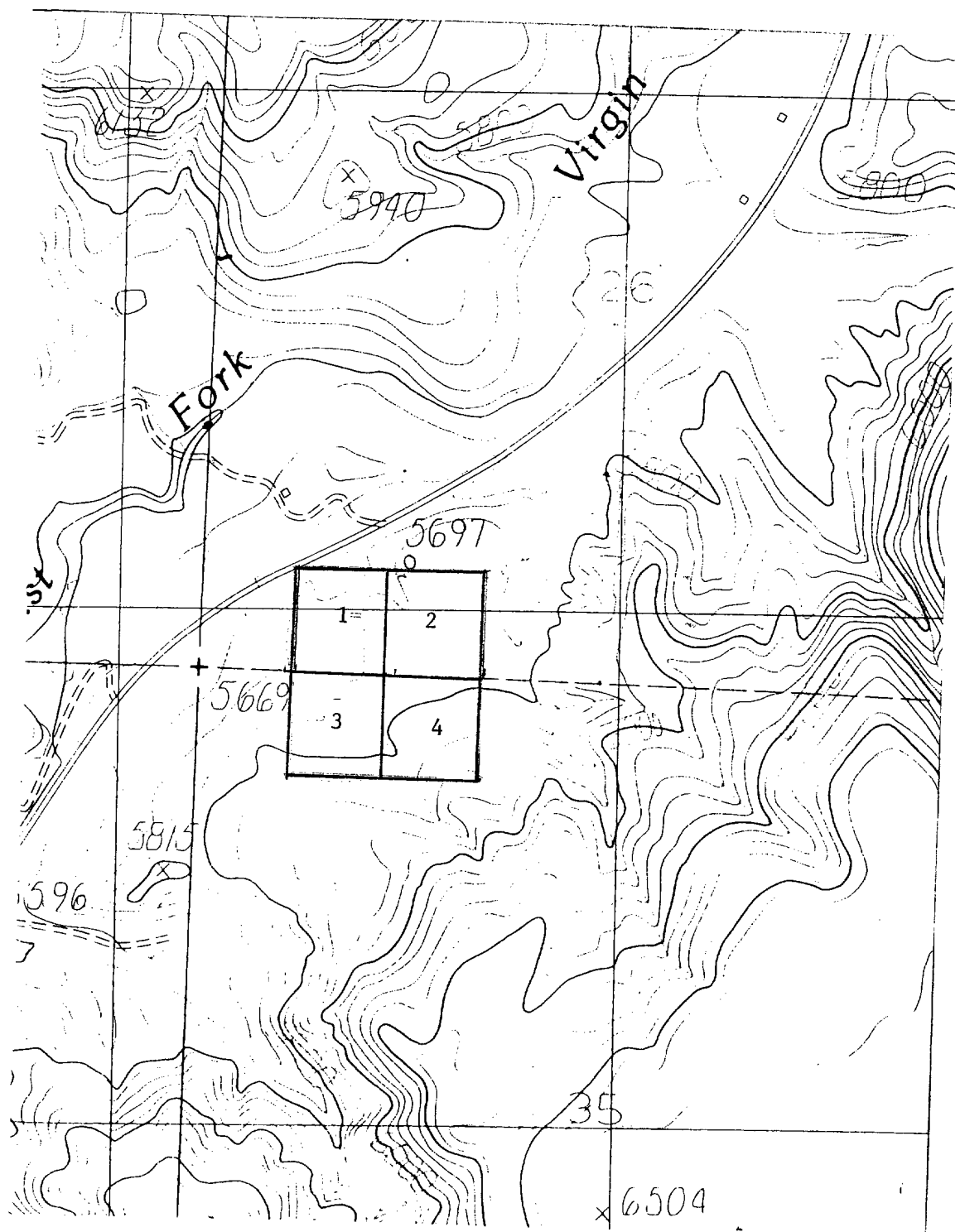
Exhibit 6. Onsite Soil Data

UTAH DIVISION OF WATER RIGHTS
 NWPLAT POINT OF DIVERSION LOCATION PROGRAM

MAP CHAR	WATER RIGHT	QUANTITY CFS AND/OR AC-FT	SOURCE DESCRIPTION or WELL INFO DIAMETER DEPTH YEAR LOG NORTH EAST	POINT OF DIVERSION DESCRIPTION CNR SEC TWN RNG B&M	U A P T S U P R N P E E U G T E N P R R R W P D
0	81 2628	5.7900	.00 East Fork of Virgin River		X X
	WATER USE(S): POWER			PRIORITY DATE: 08/15/1984	
	Glendale Irrigation Company		P. O. Box 175	Glendale	UT 84729
0	a17549	5.7900	.00 East Fork Virgin River		X X
	WATER USE(S): POWER			PRIORITY DATE: 08/23/1993	
	Glendale Irrigation Company		P. O. Box 175	Glendale	UT 84729
1	81 2959	.2200	.00 Pond Canyon Spring Stream	S 150 W 890 E4 27 40S 7W SL	X X
	WATER USE(S): IRRIGATION STOCKWATERING			PRIORITY DATE: 00/00/1900	
	Anderson, L. Dean		P. O. Box 175	Glendale	UT 84729
2	81 1713	.0850 OR	1.85 Spring Hollow Spring	N 2390 W 53 54 26 40S 7W SL	X X
	WATER USE(S): DOMESTIC STOCKWATERING			PRIORITY DATE: 00/00/1890	
	Sorenson, Dallas H. and Colleen T.		P.O. Box 85	Glendale	UT 84729
3	a20172	4.6850	.00 East Fork of Virgin River	N 1600 E 100 SW 26 40S 7W SL	X X
	WATER USE(S): IRRIGATION			PRIORITY DATE: 06/24/1996	
	Orderville Irrigation Company		P.O. Box 48	Orderville	UT 84758
4	81 2958	.0900	.00 J. S. Carpenter Springs	N 55 W 55 S4 27 40S 7W SL	X X
	WATER USE(S): MUNICIPAL			PRIORITY DATE: 00/00/1871	
	Orderville Town Corporation			Orderville	UT 84758

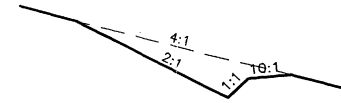
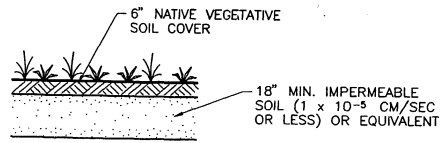
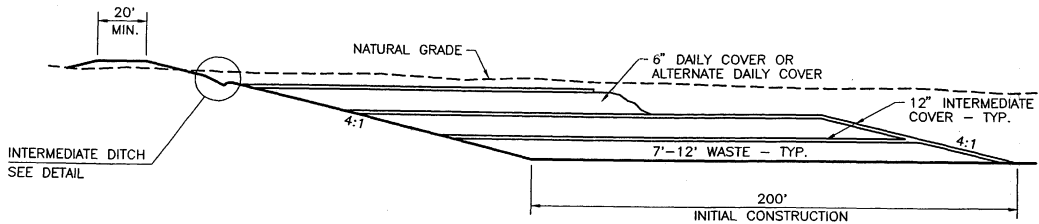
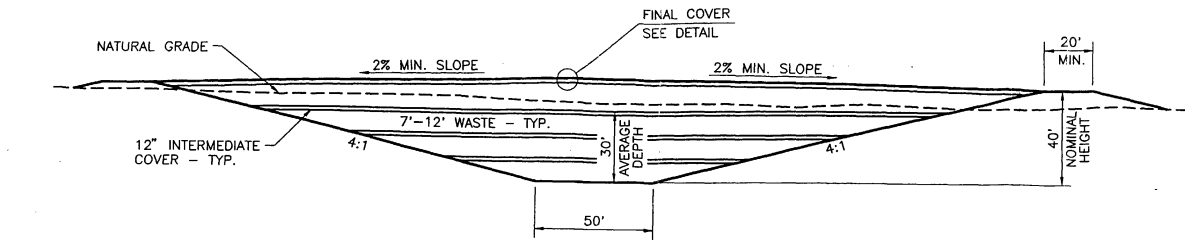
LONG VALLEY SANITARY LANDFILL

Exhibit 7. Well and Water Right Documentation



LONG VALLEY SANITARY LANDFILL

Exhibit 8. Proposed Cell Progression



NOTES:

1. ALL SIDE SLOPES 4:1 OR FLATTER
2. INITIAL CELL BOTTOM DIMENSIONS 50' x 200'
3. STOCKPILE SUITABLE MATERIAL FOR FINAL COVER DURING EXCAVATION
4. STOCKPILE TOP 6" OF NATIVE MATERIAL FOR LATER TOPSOIL USE

INTERMEDIATE DITCH DETAIL

FINAL COVER DETAIL

**LONG VALLEY SANITARY LANDFILL
CONCEPTUAL DESIGN**

EXHIBIT 9

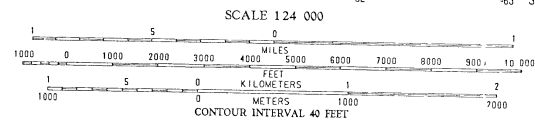
DESIGNED BB	CHECKED	DRAWN CJC
DATE	DATE	DRAWING NO.
SCALE NONE	SHEET NO. 1 OF 1	





PRODUCED BY THE UNITED STATES GEOLOGICAL SURVEY
 CONTROL BY AERIAL PHOTOGRAPHS TAKEN 1956, 1958, 1959
 FIELD CHECKED 1961 MAP EDITED 1965
 PROJECTION LAMBERT CONFORMAL CONIC
 GRID 100-METER UNIVERSAL TRANSVERSE MERCATOR ZONE 12
 1000-FOOT STATE GRID TICKS UTAH, SOUTH ZONE
 UTM GRID DECLINATION 0 57 WEST
 1965 MAGNETIC NORTH DECLINATION 14 EAST
 HORIZONTAL DATUM 1927 NORTH AMERICAN DATUM
 To place on the predicted North American Datum of 1983
 move the projection lines as shown by dashed corner ticks
 (6 meters north and 67 meters east)
 There may be private inholdings within the boundaries of any
 Federal and State Reservations shown on this map
 All marginal data and lettering generated and positioned by
 automated type placement procedures
 Where omitted land lines have not been established

PROVISIONAL MAP
 Produced from original
 manuscript drawings. Infor-
 mation shown as of date of
 field check 2



Improved Road
 Unimproved Road
 Trail
 Interstate Route

1	2	3	1 Secretary Peak
4	5	6	2 Long Valley Junction
7	8	9	3 Alton
			4 Glendale
			5 Salt Lake
			6 Cottonwood Spring
			7 White Pine
			8 Cedar Peak

ADJOINING 7.5' QUADRANGLE NAMES

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
 FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225
 OR RESTON, VIRGINIA 22092